State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining

Coal Regulatory Program Directive

Directive Number: Tech-002

Effective Date: July 1, 1997

Supersedes: Approximate Original Contour (AOC) Requirements Directive Dated April 6, 1994

Subject: **Approximate Original Contour (AOC) Requirements**

Approved: _____ On: _____
James W. Carter, Director, Division of Oil, Gas, and Mining

DISCLAIMER

"This non-binding directive is intended for internal direction for the Utah Coal Regulatory Program to clarify the implementation of the Utah Coal Rules. It neither confers rights nor imposes obligations on the Division or any other party. In the case where a conflict is perceived to exist between this directive and the Utah Coal Rules, the rules prevail."

ABSTRACT

The coal regulatory program requires that mined lands be returned to Approximate Original Contour (AOC) to provide for the restoration of the affected area to a condition which is at least, fully capable of supporting the pre-mining land use. AOC may be achieved through backfilling and grading and through other approved treatment techniques. A finding that AOC has been achieved means that; the permittee has demonstrated a basis for approval of the designs presented in the Mining and Reclamation Plan, the Division has evaluated and documented its approval of the designs in a Technical Analysis and, that upon implementation and completion of the backfilling and grading and other techniques required to achieve AOC, all of the performance standards required by reclamation are achieved. The requirements for AOC cannot be found in any one portion of the regulations, but are a compilation of performance standards which pertain to backfilling and grading, revegetation, land use, and protection of the hydrologic balance.

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1. Purpose

The definitions of Approximate Original Contour (AOC) contained in SMCRA and the Utah coal rules are primarily statements of the objectives of post-mining backfilling and grading so that the area "closely resembles the general surface configuration of the land prior to mining" and "blends into and complements the drainage pattern of the surrounding terrain". At the same time, reclamation performance standards must be met, including controlling erosion, establishing mass stability and establishing permanent, diverse and effective vegetative cover. In some circumstances, replicating the original contour may only be possible at the expense of one or more reclamation performance standards. In others, it may be possible to achieve nearly exact original contour and simultaneously satisfy all the other regulatory requirements. Although the principles of regulatory construction suggest that specific regulatory requirements take precedence over general provisions, this directive is intended to reconcile the specific performance standard requirements of the regulatory program with the general definitions of AOC in a way that accomplishes the objectives of SMCRA.

The underlying objectives of the AOC requirements relate to the assumption that post-mining features which mimic pre-mining features are most likely to quickly achieve mass and erosional stability, revegetation, hydrologic balance and productive post-mining land use, all of which are the objectives of the reclamation performance standards. AOC also addresses aesthetic considerations. In order to evaluate methods for achieving AOC, the underlying objectives and challenges of reclamation at the site in question must first be identified. In some circumstances, one objective of challenge of reclamation may be more significant than another. The methods for achieving AOC should reflect the relative significance of each objective and the interplay between each objective and the objectives of AOC in that circumstance.

The purpose of this directive is to provide the technical staff with a means of evaluating and determining compliance with Approximate Original Contour (AOC) requirements during permit review and technical evaluation. This directive constitutes the Division's interpretation of the regulations concerning AOC, but it should not be considered the regulation itself. Although alternative methods for achieving AOC may be proposed and approved, the Division will only approve applications which comply with all applicable portions of the regulations which pertain to the restoration of mined lands to approximate original contour.

The evaluation and documentation of compliance with AOC requirements will be embodied in a Technical Analysis (TA). The TA should clearly indicate that the methods proposed by the permittee will result in compliance. It should also demonstrate that the designs and plans presented in the mining and reclamation plan are sound and well justified.

2. Regulatory Basis

30 CFR Sec. 701.5, 784.15, 784.200, 785.15, 785.16, 817.102, 817.102, 817.107, 817.133
R645-100-200, R645-301-553, R645-302-270

Compliance with AOC requires meeting regulatory requirements from all disciplines. It involves meeting standards for engineering, hydrology, geology, soils, and vegetation. Compliance also involves meeting the administrative and socio-economic requirements regarding public comment and land use. This directive does not elaborate on the specific requirements under each discipline. Instead, the directive provides guidance for meeting AOC requirements by explaining those regulations which specifically address AOC, and identifying those factors and conditions which contribute to AOC.

3. Definitions

The requirements for AOC are a compilation of performance standards which pertain to backfilling and grading, revegetation, and

protection of the hydrologic balance. The fundamental intent of AOC is to provide for the restoration of the affected area to a condition which is at least fully capable of supporting the pre-mining land use. Although the following definitions of AOC provide insight concerning the intent of these requirements, they do not provide a means for a systematic evaluation to determine compliance. Section 701(2) of SMCRA gives the following definition of approximate original contour::

"approximate original contour" means that surface configuration achieved by backfilling and grading of the mined area so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain, with all highwalls and spoil piles eliminated; water impoundments may be permitted where the regulatory authority determines that they are in compliance with

The Utah Coal Rules define AOC under R645-100.200 as follows:

"Approximate Original Contour" means that surface configuration achieved by backfilling and grading of the mined areas so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain with all highwalls, spoil piles, and coal refuse piles having a design approved under the R645 Rules and prepared for abandonment.

Rule 645-100.200 provides the following definitions concerning AOC requirements::

"Excess spoil" means spoil material disposed of in a location other than the mined-out area, provided that the spoil material used to achieve AOC or to blend the mined-out area with the surrounding terrain in non-steep slope areas will not be considered excess spoil.

"Highwall" means the face of exposed overburden and/or coal in an open cut of a surface coal mining and reclamation activities or for entry to underground coal mining activities.

"Highwall remnant" means that portion of highwall that remains after backfilling and grading of a remining permit area.

"Previously mined area" means land previously mined on which there were no coal mining and reclamation operations subject to the standards of the Federal Act.

"Slope" means average inclination of a surface, measured from the horizontal, generally expressed as the ratio of a unit of vertical distance to a given number of units of horizontal distance (e.g., 1v: 5h). It may also be expressed as a percent or in degrees.

"Steep slope" means any slope of more than 20 degrees or such lesser slope as may be designated by the regulatory authority after consideration of soil, climate, and other characteristics of a region or State.

4. Policy

INTRODUCTION

The definitions of AOC are couched in terms of backfilling and grading in order to achieve certain results. The mining and reclamation plan must provide the basis for determining whether the proposed backfilling and grading plan will (1) minimize off-site effects; (2) achieve a final surface configuration which closely resembles the general surface configuration of the land prior to mining; (3) provide a subsurface foundation for a vegetative cover capable of stabilizing the surface from erosion and (4) support the approved postmining land use. It is extremely difficult, for instance, to establish a diverse, effective and permanent vegetative cover on reclaimed areas if backfilling and grading are not done properly. Consequently, a comprehensive review of the plan and on-site approval of backfilling and grading operations when they occur must be made prior to commencement of resoiling and revegetation of the reclaimed area.

The regulations allow for variances from

AOC in limited circumstances, and provide more specificity concerning variances than for general AOC compliance. Frequently the most significant costs in reclamation are those associated with backfilling and grading. Thus, permittees may seek to minimize the amount of earthwork required for reclamation. Regardless of cost considerations, the Division must make every effort to determine that the site can and will be reclaimed in accordance with AOC requirements, and only allow variances from AOC when clearly warranted. AOC variances must meet all other regulatory requirements. In most cases, a variance from AOC requires a much more stringent and detailed mining and reclamation plan for compliance than does a general AOC compliance plan. AOC variances also require the opportunity for public comment and periodic re-evaluation of the variance throughout the permit life of the operations.

AOC LAND SURFACE FEATURES

Final Surface Configuration

Except as specifically exempted, all disturbed areas shall be returned to approximate original contour. The final surface configuration shall closely resemble the general surface configuration of the land prior to mining. To evaluate compliance with this requirement, the term "surface configuration" must be clarified. For the purposes of this directive, surface configuration refers to the pre-mining and post-mining topography of the mine site and the surrounding area.

Senate Report No. 28 on Senate Bill S.7 in 1974 shows a legislative intent to distinguish between elevation and configuration by stating:

> *It must be emphasized that the requirement to return to approximate original contour does not necessarily mandate the attainment of original elevation. (emphasis added, Senate Report No. 28, 94th Congress, 1st Session, ar 214 (1974).)*

Elevation should be considered as a factor in evaluation of compliance with this requirement only when a deviation between premining and post mining elevations would result in an adverse effect on one of the reclamation performance standards. The main criteria for compliance with this regulation will be, "Does the postmining topography, excluding elevation, closely resemble its premining configuration?".

It is preferred to allow a higher postmining elevation on reclaimed areas, rather than have the permittee create permanent out-of-pit storage areas, if slope length and gradient on the reclaimed slopes can be kept within acceptable limits. Similarly for underground mining operations, but on a different scale, mass balance calculations and accurate pre- and post-mining contour maps must be provided in order to determine spoil availability and the final location and disposition of these materials.

The final grade of post-mining slopes shall not exceed approximate pre-mining slope grades. The Division will take into consideration soil, climate and other pertinent characteristics of the surrounding area in evaluating the adequacy of final graded slopes.

In arid or semi-arid areas, vegetation alone may not adequately control erosion on steep slopes. Therefore, the Division will closely evaluate the slope gradients of reclaimed areas to ensure effective erosion control.

All Spoil Piles to be Eliminated

Elimination of all spoil piles means the regrading and reshaping of spoil materials, as defined in the regulations, in such a manner as to achieve AOC and the requirements of the postmining land use. Refuse materials accumulated at the mine site during mining operations include mine development waste, coal mine waste, coal processing waste, sediment pond waste and any other non-spoil material, and must be placed in accordance with approved designs.

The regulations prohibit permanent spoil storage facilities unless the applicant has adequately shown that the spoil materials are not needed to achieve approximate original contour over the affected area. If more spoil is available than is required to meet AOC requirements, the material is classified as excess spoil. Where the applicant has demonstrated the need for disposal of excess spoil,

the regulatory requirements for excess spoil apply. Additionally, the Division should examine the general backfilling and grading performance standards to determine compliance regarding excess spoil. For all applications where permanent excess spoil disposal is approved, the final spoil pile configuration must approximate the pre-mining topography. Permittees must dispose of excess spoil in a permanent disposal facility that is designed and constructed for disposal of this material in accordance with the regulations. Such disposal facilities must also meet AOC requirements.

All Highwalls to be Eliminated

Although highwall retention under some circumstances may provide certain environmental benefits, both federal and state laws require complete elimination of all highwalls. In Utah, the rules indicate that permittees must eliminate all highwalls, except in previously or continuously mined areas and when cliffs existed in the highwall area before mining. Under the general requirements and within the meaning of this directive, elimination of highwalls means backfilling, regrading and reshaping highwalls in a manner that meets AOC requirements and the requirements of the postmining land use.

The term highwall was initially defined as a feature of surface coal mining operations. Under the regulations the definition also applies to underground coal mining operations. For underground coal mining operations highwall means the area for entry to underground coal mining activities. Portal face-up areas, dugways, shafts and boreholes for entry into underground coal mining activities are all considered highwalls.

The term highwall has also been broadly interpreted to include cut slopes or cut features associated with highwalls, roads, pad facilities and other surface features related to underground coal mining. The permanent program rules have eliminated this broad interpretation of the term. The rules fail, however, to address what specialized grading techniques, if any, should be used to reclaim cut-slopes or roads and pads.

In most cases, backfilling provides the best and the most effective means of highwall elimination. Mine development wastes and spoils resulting from underground mining operations generally result in volumes of materials greater than the volumes originally excavated during mining operations. Use of all of these materials in backfilling and grading to achieve AOC is more desirable than the development of additional disturbed areas above or adjacent to highwalls for the disposal of excess spoil. Backfilling in a controlled manner allows for the design, placement and cover of fill and topsoil in a manner that will achieve reclamation. In addition, the Division will consider stability, vegetation, erosion control, drainage design and control, and other factors in determining whether the backfilling plan complies with AOC requirements.

In some cases, leaving cut-slopes or conducting other specialized grading practices may yield a superior reclamation plan when all performance standards and requirements for AOC are considered. The Division should consider other highwall elimination techniques in addition to backfilling in evaluating AOC compliance.

Use of cut-and-fill terraces or other specialized grading practices as allowed under the general requirements for backfilling and grading also apply to the elimination of highwalls. Where conditions support an alternate post-mining land use, portions of the highwall may be utilized or reshaped during initial and final grading to facilitate implementation of the alternate post-mining land use. The alternate use must still meet AOC requirements as well as all other applicable performance standards.

In steep slope areas (greater than 20 degrees), the Division may approve a variance from the AOC requirements where the permittee demonstrates that "[t]he highwall is completely backfilled with spoil material in a manner which results in a static factor of safety of at least 1.3, using standard geotechnical analysis" 30 CFR 817.133(d)(7) (emphasis added). The rules are clear that this variance from AOC does not provide an exception to the highwall elimination requirement.

Therefore, with the limited exceptions of

continuously and previously mined areas and cliff replacement, all highwalls must be eliminated. In the case of cliff replacement, highwall remnants can be used to replace mined-through cliff type habitats and create habitat and wildlife diversity. Highwall retention may therefore meet post mining land use and AOC requirements where it is necessary to replace existing cliffs and wildlife habitats.

Retention of cutslopes associated with highwalls can also play an important role in reclamation stability and success. In some cases, cutslope retention results in a lower gradient in reclamation areas that would have otherwise had excessively steep and long slopes if completely backfilled. This reduces surface erosion which enhances plant production and the postmining land uses of livestock grazing and wildlife habitat. The Division should consider the benefits of cutslope retention when examining AOC compliance.

HYDROLOGY

Drainage restoration

The final surface configuration shall blend into and complement the drainage pattern of the surrounding terrain. Surface coal mining operations will be planned and conducted to minimize changes to the prevailing hydrologic balance in both the permit and the adjacent areas. The plan for final surface configuration of the affected area shall approximate the drainage pattern for the land prior to mining.

In order to evaluate the off-site impacts, the plan should provide premining and postmining run-off yield calculations for each significant drainage on and adjacent to the permit area. All calculations of volumes and runoff from undisturbed areas to be mined should be compared to the calculated volumes of runoff from reclaimed lands. Calculations should be within reasonable agreement (e.g. 10%), to demonstrate that no significant change in volume of runoff from the undisturbed area to be mined will occur after the mined area has been successfully reclaimed.

If the premining landscape was undulating and dissected by numerous interconnecting drainages, the postmining landscape must be similar. It must also provide a suitable foundation for a stable vegetative cover. If the plan proposes long continuous valleys which do not resemble the premining landscape and also create erosion problems, the plan is unacceptable because it fails to meet AOC requirements.

Drainage systems and channels upstream, within, and downstream of the affected area must be equivalent in size and configuration. They also may not present any significant change in the prevailing hydrologic balance or create off-site impacts.[1] If a drainage is created during final grading which did not exist prior to mining and was directed onto an area which had not established a channel, severe erosion and gully formation could result.

Sediment control

The stability of planned postmining slopes should rely on research-based formulas such as the Universal Soil Loss Equations (USLE) or other methods acceptable to the Division. The published values for the factors in the USLE are not site specific. Substitute values should be used when such values have been documented in the mining and reclamation plan and have been suitably justified.

Based on the predicted runoff and/or erosion, slopes may need to be flattened, shortened or reshaped to provide landscape stability. Insloping of benched terraces constructed during reshaping and grading of spoil can be effective when properly designed. Such benches must, however, be adequately designed to contain runoff on the bench.

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[1] A small drainage channel off of the permit area which had an 80 acre watershed area prior to mining would be adversely affected if the postmining watershed area became 200 acres. A stock pond adjacent to the permit area which had an 80 acre watershed area prior to mining would be adversely affected if the postmining watershed for that pond was eliminated. If a drainage is created during final grading which did not exist prior to mining and was directed onto an area which had no established channel, severe erosion and gully formation could result.

The reclamation plan must provide enough detail on slope shape, length and gradient so a design for slope stabilization can be developed.

POST-MINING LAND USE

General

All disturbed areas will be restored in a timely manner to conditions that are capable of supporting the land use which existed before any mining operations occurred. Alternatively, disturbed areas may be restored to provide an alternate higher or better postmining land use as approved by the Division.

Premining Land Use

The premining land uses are those uses which the land previously supported prior to any mining activities and which would have continued if the land had been properly managed. The postmining land use is compared to the premining use. For land that has been previously mined or continuously mined and not reclaimed, the pre-mining land use will be considered to be the land use that existed prior to the initial mining activity.

Alternate Postmining Land Use

Higher or better uses may be approved as alternate postmining land uses after consultation with the landowner or the land management agency having jurisdiction over the lands. The proposed uses must meet the following criteria: 1) there is a reasonable likelihood for achievement of the use; 2) the use does not present any actual or probable hazard to public health and safety, or threat of water diminution or pollution; 3) the use will not be impractical or unreasonable, inconsistent with applicable land use policies or plans, involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State, or local law.

Permittees may request approval of an alternate postmining land use through the permit revision procedures or in the original permit application. The original permit application, however, must demonstrate that the land can be returned to its premining land use capability in the event the alternate post-mining land use is not implemented. An application for a permit revision requesting approval of an alternate post-mining land use must be submitted in accordance with the requirements of filing for a Significant Permit Revision. It will constitute a significant alteration from the mining operations contemplated by the original permit, and will be subject to the requirements for permits, permit processing, and administrative and judicial decisions on permits under the regulatory program.

Variance from AOC based on Alternate Postmining Land Use

Permittees may be granted a variance from the AOC requirements if all of the following requirements are satisfied:

(1) The Division grants, in writing, a variance from approximate original contour restoration requirements.

(2) The alternative postmining land use requirements are met.

(3) All applicable requirements of the Act and the Regulatory Program, other than the requirement to restore disturbed areas to their approximate original contour, are met.

(4) After consultation with the appropriate land use planning agencies, if any, the potential use is shown to constitute an equal or better economic or public use.

(5) The proposed use is designed and certified by a qualified registered professional engineer in conformance with professional standards established to assure the stability, drainage, and configuration necessary for the intended use of the site.

(6) After approval, where required, of the appropriate State environmental agencies, the watershed of the permit and adjacent areas is shown to be improved.

(7) The highwall is completely backfilled with spoil material, in a manner which results in

a static factor of safety of at least 1.3, using standard geotechnical analysis.

(8) Only the amount of spoil as is necessary to achieve the postmining land use, ensure the stability of spoil retained on the bench, and meet the other requirements of the Act and regulations may be placed on the mine bench. All spoil not retained on the bench will be placed in accordance with all other applicable regulatory requirements.

(9) The surface landowner of the permit area has knowingly requested, in writing, that a variance be granted, so as to render the land after reclamation suitable for an industrial, commercial, residential, or public use (including recreational facilities.)

(10) Federal, State, and local government agencies with an interest in the proposed land use have an adequate period in which to review and comment on the proposed use.

BACKFILLING AND GRADING

General

Disturbed areas will be backfilled and graded to: 1)achieve the approximate original contour; 2) eliminate all highwalls, spoil piles, and depressions; 3) achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides; 4) minimize erosion and water pollution both on and off the site; and 5) support the approved postmining land use.

The postmining slope may vary from the approximate original contour when the Division approves a variance from approximate original contour requirements. The slope may also vary from AOC when the regulations allow for incomplete elimination of highwalls in previously mined areas. Permittees may construct small depressions if they are necessary to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation.

When the Division determines that disturbance of the existing spoil or underground development waste increases environmental harm or adversely affects the health and safety of the public, the Division may allow the existing spoil or underground development waste pile to remain in place. Accordingly, the regulations do not require regrading of settled and revegetated fills to achieve approximate original contour if: 1) the settled and revegetated fills are composed of spoil or nonacid- or nontoxic-forming underground development waste; 2) the spoil or underground development waste is not located so as to be detrimental to the environment, to the health and safety of the public, or to the approved postmining land use; 3) permittees demonstrate stability of the spoil or underground development waste through standard geotechnical analysis to be consistent with backfilling and grading requirements for material on a solid bench (1.3 static safety factor) or excess spoil requirements for material not placed on a solid bench (1.5 static safety factor); 4) the surface of the spoil or underground development waste will be vegetated in accordance with the revegetation standards for success, and surface runoff will be controlled in accordance with the regulatory requirements for diversions.

Permittees must return spoil to the mined-out surface area. They must compact spoil and waste materials where advisable to ensure stability or to prevent leaching of toxic materials. They may place spoil on the area outside the mined-out surface area in nonsteep slope areas to restore the approximate original contour by blending the spoil into the surrounding terrain if the following requirements are met: 1) all vegetative and organic materials will be removed from the area; 2) the topsoil on the area will be removed, segregated, stored, and redistributed in accordance with regulatory requirements; 3) the spoil will be backfilled and graded on the area in accordance with the general requirements for backfilling and grading.

Disposal of coal processing waste and underground development waste in the mined out surface area will be in accordance with the general requirements for backfilling and grading except that a long-term static safety factor of 1.3 must be achieved.

Permittees must adequately cover or treat exposed coal seams, acid- and toxic-forming materials, and combustible materials exposed, used, or produced during mining. Permittees may use nontoxic and noncombustible materials to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

The Division may allow cut-and-fill terraces where needed to conserve soil moisture, ensure stability, and control erosion on final-graded slopes. It will also allow terraces that are compatible with the approved postmining land use, specialized grading or foundation conditions. If roads are required for the approved postmining land use, the final grading may include a terrace of adequate width to ensure the safety, stability, and erosion control necessary to implement the postmining land-use plan.

Permittees must conduct preparation of final-graded surfaces in a manner that minimizes erosion and provides a surface for replacement of topsoil that will minimize slippage.

Previously Mined and Continuously Mined Areas

The reclamation requirements apply to remining operations on previously mined areas or underground mining operations conducted prior to August 3, 1977 and continued after that date that contain pre-existing highwalls. The requirement for elimination of all highwalls does not apply to remining operations or continuously mined operations where the permittee demonstrates in writing to the Division that the volume of all reasonably available spoil is insufficient to completely backfill the reaffected or enlarged highwall. Permittees must eliminate highwalls to the maximum extent technically practical in accordance with the following criteria:

(1) All spoil generated by the remining or continuous mining operations and any other reasonably available spoil will be used to backfill the highwall. Reasonably available spoil in the immediate vicinity of the remining or continuous mining operation will be included within the permit area.

(2) The backfill will be graded to a slope which is compatible with the approved postmining land use and which provides adequate drainage and long-term stability.

(3) Any highwall remnant will be stable and not pose a hazard to the public health and safety or to the environment. The permittee will demonstrate, to the satisfaction of the Division, that the highwall remnant or retained highwall is stable and achieves a minimum long-term static safety factor of 1.3 and prevents slides, or provide an alternative criterion to establish that the highwall remnant or retained highwall is stable and does not pose a hazard to the public health and safety or to the environment.

(4) Spoil placed on the outslope during previous mining operations will not be disturbed if such disturbances will cause instability of the remaining spoil or otherwise increase the hazard to the public health and safety or to the environment.

Retained Highwalls

A highwall or highwall remnant may be retained if a cliff existed in the disturbed area before commencement of mining operations. To allow a highwall to remain under the requirements of this section, the retained highwall cannot be greater in height than the cliffs and cliff-like escarpments that were replaced or disturbed by the mining operations. The retained highwall will be modified, if necessary, to restore cliff-type habitats required by the flora and fauna existing prior to mining. The retained highwall will be compatible with both the approved postmining land use and the visual attributes of the area. The retained highwall will be compatible with the geomorphic processes of the area. Prior to obtaining approval for the retention of a highwall, the permittee will establish, and the Division will find in writing, that the proposed highwall will achieve the stability requirements for highwalls and that the proposed highwall will meet the approximate original contour criteria.

Backfilling and Grading on Steep Slopes

Underground mining activities on steep slopes will be conducted so as to meet other applicable regulatory requirements and the requirements for backfilling and grading. The following materials will not be placed on the downslope: spoil; waste materials of any type; debris, including that from clearing and grubbing; abandoned or disabled equipment. Land above the highwall will not be disturbed unless the Division finds that this disturbance will facilitate compliance with the environmental protection standards and the disturbance is limited to that necessary to facilitate compliance. Woody materials will not be buried in the backfilled area unless the Division determines that the proposed method for placing woody material within the backfill will not deteriorate the stable condition of the backfilled area.

Special Provisions for Steep Slope Mining

The Division will not issue permits for any operations covered by steep slope mining, unless the Division finds, in writing, that the operation meets all other regulatory requirements and that the operation will be conducted in accordance with the requirements for backfilling and grading on steep slopes. Any application for a permit for surface coal mining and reclamation operations covered by steep slope mining shall contain sufficient information to establish that the operations will be conducted in accordance with the requirements for backfilling and grading on steep slopes.

This section applies to any person who conducts or intends to conduct steep slope surface coal mining and reclamation operations, except: 1) where a permittee proposes to conduct surface coal mining and reclamation operations on flat or gently rolling terrain, leaving a plain or predominantly flat area, but on which an occasional steep slope is encountered as the mining operation proceeds; 2) where a person obtains a permit under the provisions for mountaintop removal mining; or, 3) where a person obtains a permit incorporating a variance from approximate original contour restoration requirements.

SPECIAL VARIANCES FROM AOC

RESTORATION REQUIREMENTS IN STEEP SLOPE AREAS

Note: The following requirements apply only in steep slope areas.

The Division may issue a permit for nonmountaintop removal mining in steep slope areas which includes a variance from the backfilling and grading requirements to restore the disturbed areas to their approximate original contour. The permit may contain such a variance only if the Division finds, in writing, that the applicant has demonstrated, on the basis of a complete application, that the following requirements are met:

(1) After reclamation, the lands to be affected by the variance within the permit area will be suitable for an industrial, commercial, residential, or public postmining land use (including recreational facilities).

(2) The criteria for the proposed post mining land use will be met.

(3) The watershed of lands within the proposed permit and adjacent areas will be improved by the operations when compared with the condition of the watershed before mining or with its condition if the approximate original contour were to be restored. The watershed will be deemed improved only if: the amount of total suspended solids or other pollutants discharged to ground or surface water from the permit area will be reduced, so as to improve the public or private uses or the ecology of such water, or flood hazards within the watershed containing the permit area will be reduced by reduction of the peak flow discharge from precipitation events or thaws; the total volume of flow from the proposed permit area, during every season of the year, will not vary in a way that adversely affects the ecology of any surface water or any existing or planned use of surface or ground water; and, the appropriate State environmental agency approves the plan.

(4) The owner of the surface of the lands within the permit area has knowingly requested, in writing, as part of the application, that a variance be granted. The request shall be made separately from any surface owner consent given for right-of-entry and shall show an understanding that the variance could not be granted without the surface owner's request.

If a variance is granted, the requirements of the post-mining land use criteria will be included as a specific condition of the permit, and, the permit will be specifically marked as containing a variance from approximate original contour.

The Division will review a permit incorporating a variance at least every 30 months following the issuance of the permit. The review will evaluate the progress and development of the surface coal mining and reclamation operations to establish that the permittee is proceeding in accordance with the terms of the variance. If the permittee demonstrates to the Division that the operations have been, and continue to be, conducted in compliance with the terms and conditions of the permit, the review specified need not be held. The terms and conditions of a permit incorporating a variance may be modified at any time by the Division, if it determines that more stringent measures are necessary to ensure that the operations involved are conducted in compliance with the requirements of the regulatory program. The Division may grant variances only if it has promulgated specific rules to govern the granting of variances in accordance with the provisions of this section and any necessary, more stringent requirements.

5. Delegated Responsibilities

AOC determination requires technical review by Division Staff. Approval for AOC requirements is part of the permit findings.

6. Reporting Requirements

None.

7. References

None.

8. Effect on other Documents

Supersedes Approximate Original Contour (AOC) Requirements directive dated April 6, 1994.

9. Division Contact/Work Group

J. Randall Harden, P.E., Sr. Reclamation Engineer.

10. Key Words

AOC, Approximate Original Contour, Backfilling and Grading, Highwall, Previously Mined Area, Remining, Continuously Mined, Spoil, Post Mining Land Use, Variance from AOC Requirements.

11. Appendices

None.